

Pixar's RenderMan Certified Courseware Contents

Fundamentals

This section of the Courseware describes the theory behind Pixar's RenderMan®. The Fundamentals lay the foundation needed to understand how RenderMan Studio functions internally. It is important to work through this section as the understanding you gain will help you work more efficiently and diagnose problems when you start to use RenderMan in production.



Introduction to RenderMan Studio

- Studio Overview
- Overview of the Render Settings
- Introduction to Slim
- Introduction to "it"
- Introduction to Alfred

RenderMan Under the Hood

- RenderMan, PRMan, the RiSpec, and RenderMan Studio
- REYES - RenderMan Under the Hood

RIB - The Backbone of it All

- RIB - RenderMan's Scene Description Language
- RenderMan Options and Attributes
- A RIB File, Line by Line
- RIB Archiving
- Procedural RIB

Scene

- Cameras
- Motion Blur

Shading

- Intro to Shading
- Slim and Hypershade
- Raytracing Fundamentals
- PointBased Occlusion and Color Bleeding
- Subsurface Scattering

Passes Baking and Reuse

- Passes in RenderMan
- Map Generation
- Baking In RenderMan
- More on Point Clouds and Brick Maps

Lighting and Rendering

- All About the RenderMan Environment Light
- Occlusion and Image-Based Lighting
- Secondary Outputs And AOVs

Additional Features

- Level of Detail
- Primitive Variables
- Deep Shadows
- Statistics

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How To's - Introductory

Introductory HowTos provide concise tutorials that demonstrate accessing RenderMan functionality through the Studio interface. The HowTos are designed to guide you through the techniques used to achieve certain effects.

Lighting

- Rendering with Image based lighting
- Using Shadows
- Color Bleeding
- Ambient Occlusion
- Approximate Occlusion And Color Bleeding Custom Light Shaders

Slim

- Creating Networks with Slim
- Using Primitive Variables with Slim
- Using AOVs
- Outputting Index Passes

Shading

- Displacement I , II
- Subsurface Scattering
- Fog and Atmospheric Effects
- Writing and Compiling a Simple Shader

RIB Archiving

- Viewing Your Scene RIB
- Introduction To RIB Archiving
- Animating RIB Archives

Alfred

- Dispatching to Alfred
 - Outputs and Passes
- Using Secondary Outputs
- Outputting ZDepth
- Introduction to Adaptor Workflow
- Continuing with Adaptors
- Faking Reflections
- Pass Management Tool

Rendering

- Motion Blur and Depth of Field
- Particles
- Curves
- Intro to Raytracing
- Raytracing Caustics
- Rendering Fur
- Texture Baking

Advanced Features

- Brickmaps I, II
- Shared Geometric Attributes
- CSG
- Primitive Variables
- Level of Detail
- Brickmaps for LOD

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How To's - Advanced

Advanced HowTos walk through more involved examples of VFX production work. They typically combine a number of the techniques covered in the fundamentals and introductory HowTos, to solve challenging effects problems. These tutorials generally require a familiarity with MEL and possibly other scripting languages.

VFX

- Leaves
- Raindrops On Glass
- Impacts On Glass
- Winged Lion
- Creating and Rendering a Spider Web

Slim and RSL

- Using SL boxes in Slim
- Programmable Ray Tracing I: Rayinfo
- Programmable Ray Tracing II: Gather
- Writing a Simple Slim Template
- Writing a Cook-Torrance Surface Shader
- Writing a BRDF Template

Miscellaneous Techniques

- Footprint in the Snow
- Reflection Occlusion
- String Primitive Variables

Procedurals

- Introduction to Run Programs
- Procedural 'Run Program' 2: Visualizing External Datasets

"it" - Pixar's Imaging Tool

- Introduction to Iceman Scripting
- Adding a Custom Slate with IceMan
- Accumulating Depthmaps with IceMan



Production Examples

Pixar Animation Studios

- Inside Pixar's Shorts
- Fur in Ratatouille
- Inside the Ratatouille Kitchen
 - Shading Food in Ratatouille
 - Lighting Food in Ratatouille
- Fast, Soft Refections Using Radiance Caches
- RenderMan in Pixar's Pipeline
- Finding Nemo - Shading a Coral Reef



Industrial Light And Magic

- RenderMan Inside Industrial Light and Magic

Sony Pictures Imageworks

- Wave Effects and Shading on Surf's Up
- RenderMan on Film

FramestoreCFC

- Children of Men

Weta Digital

- Shading Fur in King Kong

Disney Feature Animation

- RenderMan In Production at WDA

Peter Crowther Associates

- RenderMan in Print

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Library - Literature

Siggraph RenderMan Course Notes Breakdown

- Siggraph 2006 paper
- Siggraph 2003 paper
- Siggraph 2002 paper
- Siggraph 2001 paper

- Siggraph 2000 paper
- Siggraph 1998 paper
- Siggraph 1995 paper



Publications

- Classic CG Papers

RenderMan and Scripting References

- Application Notes
- Slim Template Reference
- TCL Syntax Reference
- Cheat Sheet

General Reference

- Shader Global Variables Tables
- Resolution Table

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